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PHOTOGRAPHIC INTERPRETATION REPORT

CHEMICAL COMPLEX AND AMMUNITION STORAGE SITE NEAR CHU-HSIEN, CHINA

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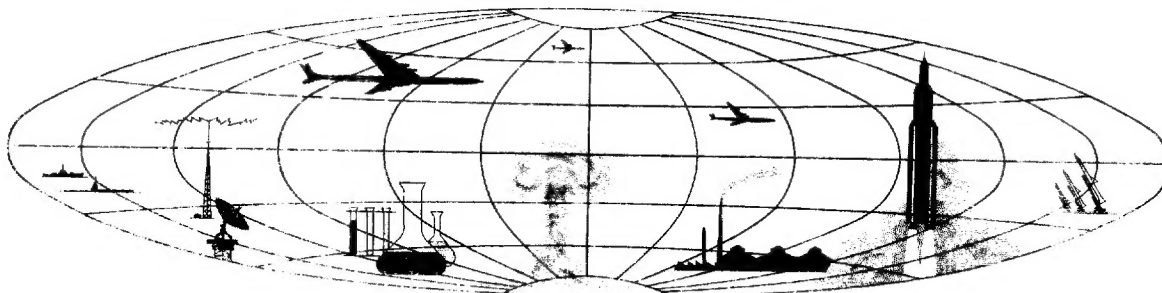


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CHEMICAL COMPLEX AND AMMUNITION STORAGE SITE NEAR CHU-HSIEN, CHINA

CHEMICAL COMPLEX

SUMMARY

The chemical complex near Chu-hsien is a large, well integrated industry whose main products are chemical fertilizers. Because of the size of the complex, the facilities available, and the large number of basic chemicals being produced, it is very likely that many processes are present which cannot be identified on photography. Some of the compounds resulting from these processes are possibly urea, ammonium chloride, plastics, and insecticides.

DESCRIPTION

A chemical complex is located 3.5 nautical miles (nm) south-southeast of the city of Chu-hsien (28-58N 118-52E), China (Figure 1). It is served by a spur of the Chiang-shan/Chu-hsien rail line.

For description purposes the complex is divided into 16 sections which are outlined in Figure 2. The numbered items in the description of the various sections are keyed to structures in Figure 3. The steamplant, water treatment plant, and the transformer yard are not described, but are annotated in Figure 2. A wall, which was nearly complete on [] will enclose the complex. Extensive high-quality housing (not shown) has been constructed west of the complex on both sides of

the Chiang-shan River. The area also contains dormitories, messhalls, and institutional-type buildings.

Section 1. This section, a liquid air plant, is located approximately 230 feet southwest of the chemical complex proper. Eight tanks, a gasometer (item 1), and a compressor building (item 2) are visible. The main end product of this section appears to be nitrogen which is utilized in section 2.

Section 2. A building which houses crushing equipment (item 3), a building housing kilns (item 4), a calcium carbide furnace building (item 5), and the acetylene and cyanamide production building (item 6) are visible. Lime and acetylene are produced here and used in section 3. The main end products are calcium carbide and cyanamide.

Section 3. This section uses chlorine, acetylene, and lime produced in other sections of the complex. Lime silos (item 7) are readily identifiable. The main end products of this section are polyvinyl chloride and probably neoprene.

Section 4. The chlorine produced by the electrolytic method in this section is utilized in at least four other sections of the complex. The electrolysis building (item 8), the chlorine drying building (item 10), and the caustic soda evaporation building (item 9), are readily identifiable. The main end products of this section are chlorine, caustic soda, and hydrogen.

Section 5. A bleaching powder production unit (item 11) is identified in this part of the

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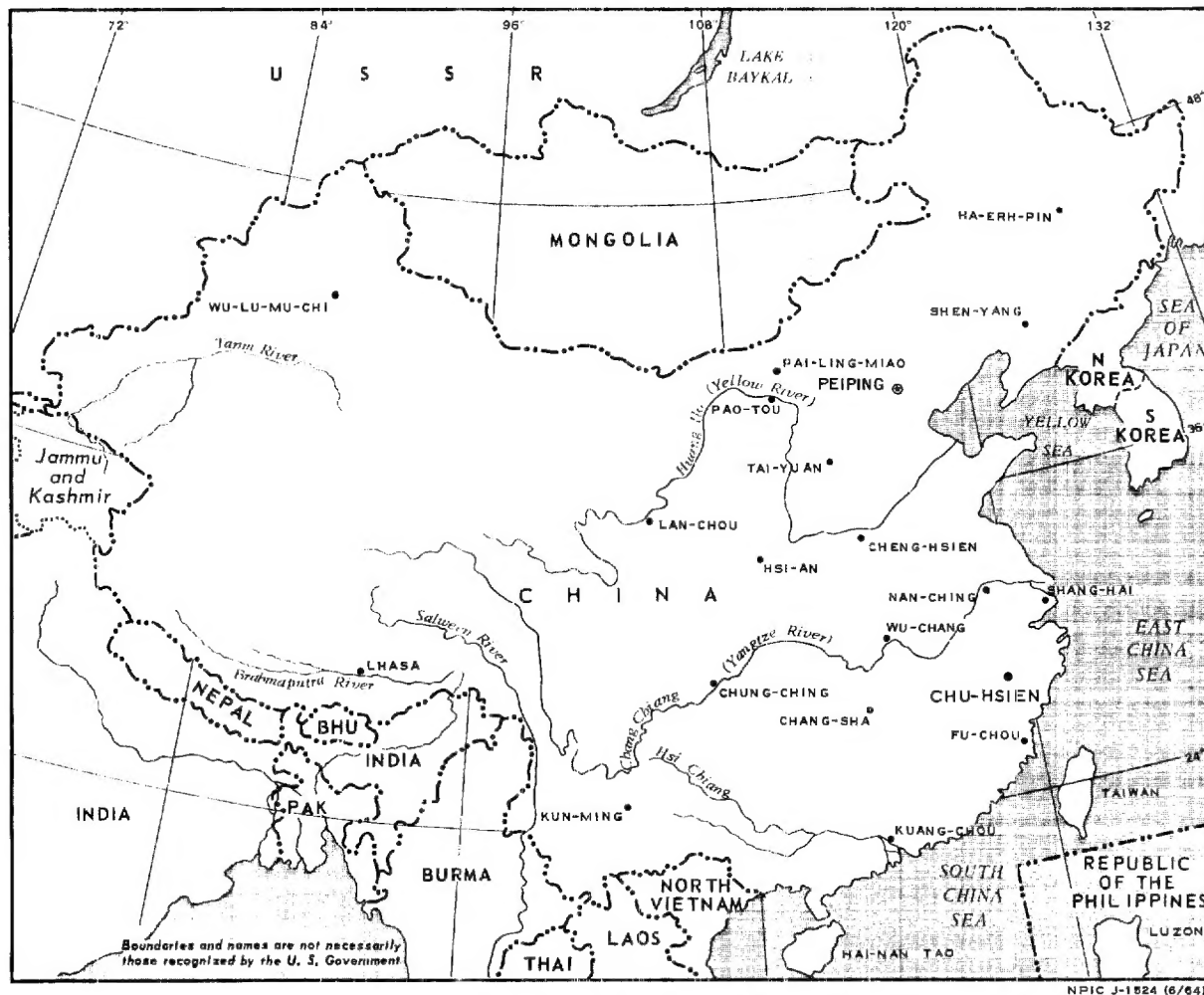


FIGURE 1. LOCATION MAP.

complex. The association of electrolytic chlorine-caustic soda plants with the production of bleaching powder is a common occurrence in Chinese chemical complexes of this type.

Section 6. This plant utilizes hydrogen and chlorine produced in the nearby chlorine-caustic soda plant to make hydrochloric acid. The hydrochloric acid production building and its associated acid tanks (item 12) are identifiable.

Section 7. Small iron producing units (item 13) use the waste material from the iron pyrite

roasting operation in section 11. The main product of the section is iron.

Section 8. The main product of this section may be insecticides. The production of insecticides would be consistent with the facilities and materials available in the complex. Because of the availability of benzene and chlorine, the main insecticide possibly produced is probably benzene hexachloride 666 powder. However, in a plant this size a variety of other insecticides are probably produced. A pipeline

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probably carrying chlorine is visible entering the main production building (item 14).

Section 9. This section contains two large possible storage buildings and several smaller buildings; it is a possible bagging and storage area.

Section 10. In this section a modified version of the Haber-Bosch system utilizing coal as the basic raw material is used to produce ammonia. The retort building (item 15), purification units (item 16), the compressor and synthesis building (item 17), all of which are essential in the production of ammonia, are identifiable. Also visible are the ammonium sulfate unit (item 18) and a possible nitric acid/ammonium nitrate production building (item 19). The main products of the plant are ammonia, aqueous ammonia, and ammonium sulfate; in addition, nitric acid and ammonium nitrate are probably produced here.

Section 11. Pyrite roasting units (item 20) and cooling racks (item 21) in this plant are conclusive photographic indicators of the manufacture of sulfuric acid. The acid is produced by the contact process; the basic raw material is iron pyrites.

Section 12. Pipelines are visible leading from the sulfuric acid section and from the ammonia section of the complex to the main

production building of this section (item 22). At the time of photography steam was rising from the crushing room of the superphosphate production building. Superphosphate is produced by the action of sulfuric acid on crushed phosphate rock. The main products of the section are superphosphate and ammoniated superphosphate.

Section 13. Two small coke ovens (item 23) are visible in this section. Coke and benzene are probably the main products of this part of the complex; the benzene produced here is probably used in the production of insecticides.

Section 14. This section does not appear to be in operation. The design of the main building (item 24) suggests that it houses either electrolysis equipment or electric arc furnaces. This, in turn, suggests the possibility of a second chlorine-caustic soda section or an elemental phosphorus plant although other than building design, there is little evidence to support either of these possibilities.

Section 15. Section 15 appears to be a shops and plant maintenance area. Numerous storage buildings are also visible throughout the section.

Section 16. This section is the main administration section of the complex. In addition to its administrative function, this area houses the laboratories for the complex.

AMMUNITION STORAGE SITE

An ammunition storage site is located 3 nm south of the city of Chu-hsien and 2.5 nm northwest of the chemical complex. There does not appear to be any direct relationship between the site and the chemical complex. Any rail or road traffic between the two installations would have

to take a circuitous route. It appears more likely that the munitions storage site is associated with Chu-hsien Airfield, approximately 3.5 nm northwest of the site.

Storage Buildings. Ten revetted storage buildings and two unrevetted buildings are lo-

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FIGURE 2. CHEMICAL COMPLEX NEAR CHU-HSIEN, CHINA,

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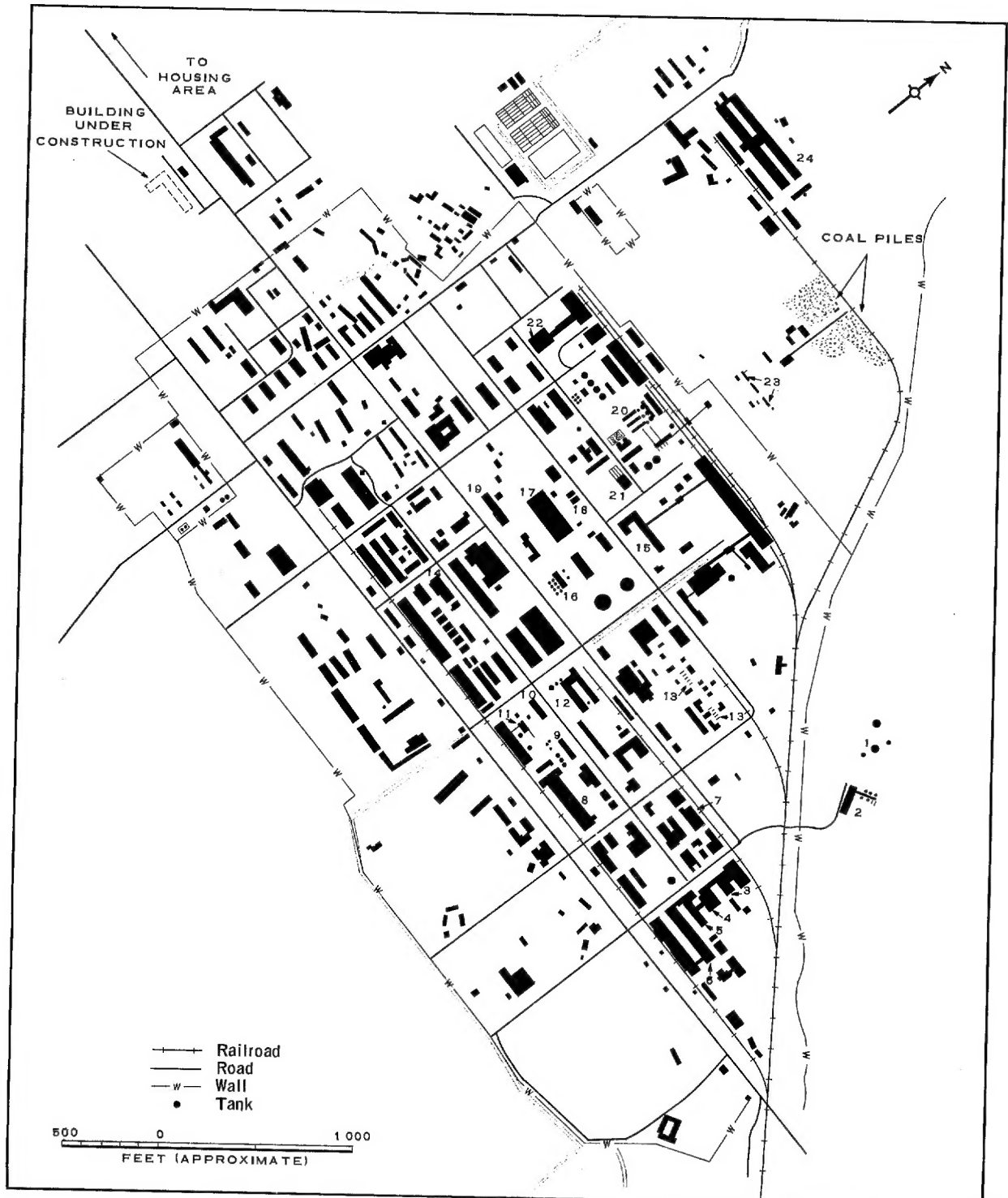


FIGURE 3. LAYOUT OF CHEMICAL COMPLEX.

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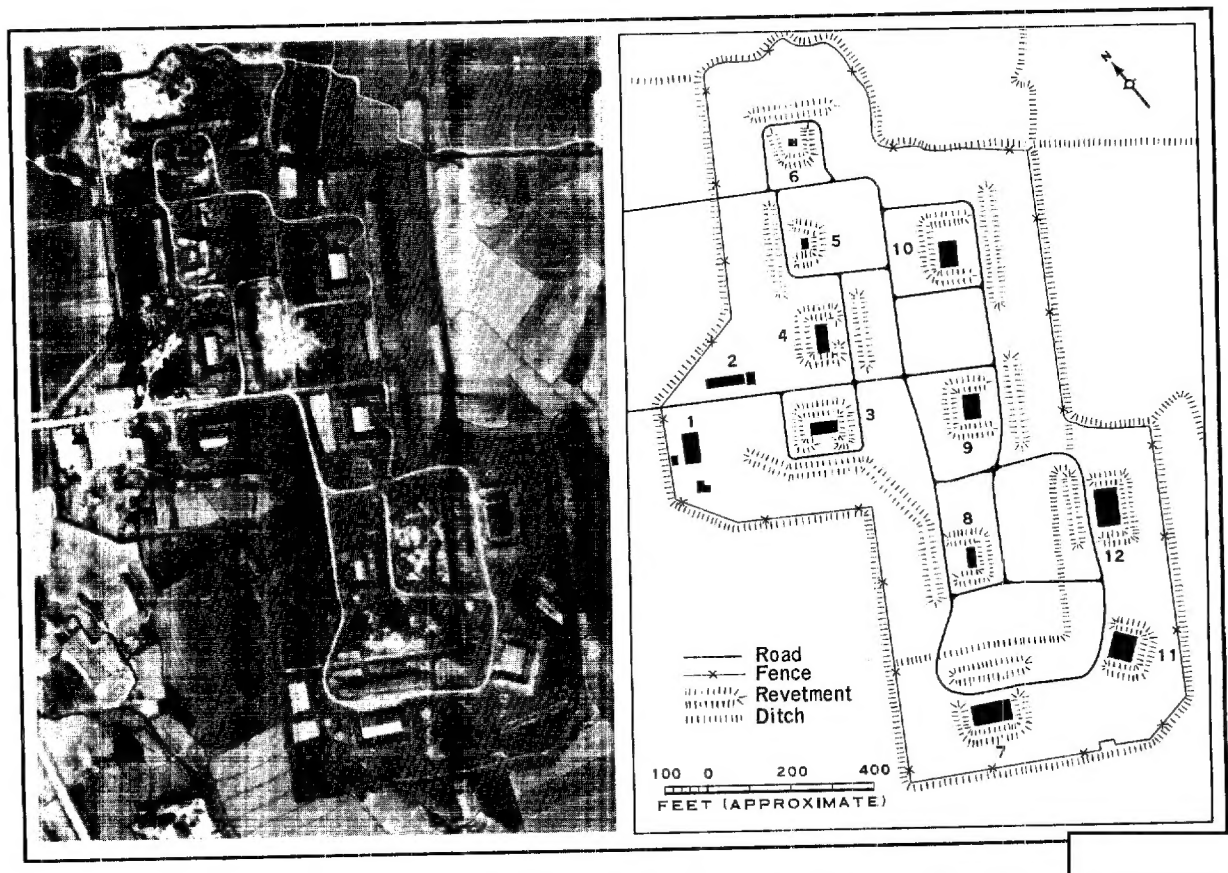


FIGURE 4. AMMUNITION STORAGE SITE NEAR CHU-HSIEN, CHINA, [REDACTED]

cated within the site (Figure 4). Dimensions of the buildings are presented in Table 1. Six of the storage buildings (buildings No 3-6, 8 and 9) have ventilators on their roofs.

Administration and Housing. One of the unrevetted buildings in the site appears to be a barracks; the other building is probably used for administration purposes.

Security. The site is secured by a single fence. A drainage ditch parallels the fence.

Table 1. Dimensions of Buildings
at Ammunition Storage Site
(Building numbers are keyed to Figure 4)

Number	Dimensions (ft)
1	[REDACTED]
2	
3, 4	
5	
6	95 x 55
7	
8	[REDACTED]
9, 10	
11	60 x 55
12	95 x 50

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REFERENCES

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PHOTOGRAPHY



MAPS OR CHARTS

ACIC. US Air Target Chart, Series 100, Sheet S0493-9992-100A, 1st ed, Aug 57, scale 1:100,000 (CONFIDENTIAL/



REQUIREMENT

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